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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/836,761	04/18/2001	Gerard White	19282-024	6805

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Lipsitz & McAllister, LLC
755 MAIN STREET
MONROE, CT 06468

EXAMINER	
MAIS, MARK A	
ART UNIT	PAPER NUMBER
2664	

DATE MAILED: 10/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/836,761	WHITE ET AL.	
	Examiner	Art Unit	
	Mark A. Mais	2664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-21 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-21 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 16 November 2001 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 7/9/01; 6/4/02.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statements (IDSs) submitted on July 9, 2001 and June 4, 2002 were filed after the mailing date of the Application on April 18, 2001. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner considered the information disclosure statements.

Claim Objections

2. Claim 1 is objected to because of the following informalities: It has the Acronym "CMTS" without defining what it means (e.g., as in claim 13). Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Sensel et al. (USP 6,636, 478).

5. With regard to claim 1, Sensel et al. discloses a CMTS system for receiving signals from, and transmitting signals toward, a High-Frequency Coax plant, the system [**interpreted as communications equipment system, see Title**] comprising:

a plurality of normally-active CMTSs each configured to receive and transmit modem-compatible signals [**Figs. 2 and 3, signal processing function 29, col. 4, lines 62-64; DS3 terminator circuits transmit data signals**];

a plurality of interface modules coupled to the normally-active CMTSs and configured to convey data toward the HFC from the normally-active CMTSs and from the HFC toward the normally-active CMTSs [**Fig. 3, all signal processing functions 29 are coupled to an interface module, interpreted by examiner to be line interface unit 24**]; and

a spare CMTS configured to receive and transmit modem-compatible signals [**Fig. 4, signal processing function 29 in spare TRIB card 36**];

wherein at least two interface modules [**Figs. 2 and 4, line interface units 24 in TRIB cards 33, 34, and 35**] are coupled to each other in a daisy-chain fashion to couple at least a first of the interface modules to the spare CMTS via at least a second of the interface modules to which the first interface module is daisy-chain coupled [**Figs. 2 and 4, daisy-chained through interconnects 309, 310, 311, 312, and 313, col. 5, lines 53-61**].

6. With regard to claim 2, Sensel et al. discloses a switch mechanism configured to selectively couple the spare CMTS to at least two interface modules independently of any other of the interface modules [**Fig. 4, when TRIB card 33 fails, the signal processing function 29 in spare TRIB card 36 is selected to interface with only the two examiner-interpreted signal processing function 29s for TRIB cards 34 and 35, col. 6, lines 11-32**].

7. With regard to claim 3, Sensel et al. discloses at least one of the at least two interface modules are further coupled to another interface module in a daisy-chain fashion [**the signal processing function 29 in spare TRIB card 36 is selected to interface with only the two examiner-interpreted signal processing function 29s for TRIB cards 34 and 35, col. 6, lines 11-32; which are daisy-chain connected to the signal processing function 29 of the failed TRIB card 33**].

8. With regard to claim 4, Sensel et al. discloses that the switch mechanism is configured to, in response to a normally-active CMTS becoming at least imminently non-active, couple the spare CMTS to an interface module associated with the normally-active CMTS that is at least imminently non-active [**error detection hardware/software resident on the TRIB cards detect a failing TRIB card, col. 4, line 66 to col. 5, line 3; *see also* col. 6, lines 11-24**].

9. With regard to claim 5, Sensel et al. discloses that each interface module corresponds to a respective normally-active CMTS, the interface modules each including an upstream input port and a downstream output port **[input 22 is a transmit/receive pair, e.g., DS-3, col. 4, lines 44-48]**, and wherein each interface module is configured to couple its downstream output port and upstream input port to its respective normally-active CMTS while the respective normally-active CMTS is operational and to the spare CMTS otherwise **[Fig. 2, input 22 transmit/receive pair is operational for TRIB card 33 until it fails, col. 5, lines 21-35]**. .

10. With regard to claim 6, Sensel et al. discloses that each interface module is configured to couple its downstream output port and upstream input port to its respective normally-active CMTS while bypassing the spare CMTS **[Figs. 2 and 4, the spare signal processing function 29 of spare TRIB card 36 is bypassed until TRIB card 33 fails and then the protection transmit pair 21 of spare TRIB card 36 is activated, col. 6, lines 24-35]**.

11. With regard to claim 7, Sensel et al. discloses that the first and second interface modules are selectively coupled to each other in a daisy-chain fashion, the second interface module being configured to decouple the first interface module from the spare CMTS while the second interface module couples its upstream input port and downstream output port to the spare CMTS **[Figs. 2 and 4, the failed TRIB card 33 gets it's line interface 24 uncoupled from it's signal processing function 29, and, ultimately, the stream couples to signal processing function 29 of TRIB card 36, col. 6, lines 24-35]**.

12. With regard to claim 8, Sensel et al. discloses that the spare CMTS includes a diagnostic cable modem configured to detect errors in the normally-active CMTSs **[logic on each card performs error detection hardware, col. 5, lines 2-3]**.

13. With regard to claim 9, Sensel et al. discloses that the diagnostic cable modem is configured to test the normally-active CMTSs **[logic on each card performs error detection hardware, col. 5, lines 2-3]**.

14. With regard to claim 10, Sensel et al. discloses a CMTS system for receiving signals from, and transmitting signals toward, a
High-Frequency Coax plant, the system **[interpreted as communications equipment system, see Title]** comprising:

a plurality of normally-active CMTSS each configured to receive and transmit modem-compatible signals **[Figs. 2 and 3, signal processing function 29, col. 4, lines 62-64; DS3 terminator circuits transmit data signals]**;

a plurality of input/output (I/O) modules each associated with a respective normally-active CMTSs **[Fig. 3, all signal processing functions 29 are coupled to an interface module, interpreted by examiner to be line interface unit 24]**;

a spare CMTS configured to receive and transmit modem-compatible signals **[Fig. 4, signal processing function 29 in spare TRIB card 36]**; and

coupling means for serially coupling at least two of the I/O modules associated with normally-active CMTSs to the spare CMTS **[Figs. 2 and 4, line interface units 24 in TRIB cards 33, 34, and 35 are daisy-chained through interconnects 309, 310, 311, 312, and 313, col. 5, lines 53-61; to fail-over TRIB card 36]**.

15. With regard to claim 11, Sensel et al. discloses that the coupling means is configured to selectively couple an input and an output of the spare CMTS to an output and an input of one of the I/O modules associated with one of the normally-active CMTSs that is at least imminently non-active **[error detection hardware/software resident on the TRIB cards detect a failing TRIB card, col. 4, line 66 to col. 5, line 3; *see also* col. 6, lines 11-24; Figs. 2 and 4, the failed TRIB card 33 gets it's line interface 24 uncoupled from it's signal processing function 29, and, ultimately, the stream couples to signal processing function 29 of TRIB card 36, col. 6, lines 24-35]**.

16. With regard to claim 12, Sensel et al. discloses that the coupling means is configured to selectively couple to at least a third of the I/O modules associated with a normally-active CMTS independently of the at least two I/O modules that are serially coupled by the coupling means **[Fig. 5, using 1:2 redundantcy, when TRIB card 32 fails, the signal processing function 29 in spare TRIB card 33 is selected to interface with only the two examiner-interpreted signal processing function 29 for TRIB card 33, col. 6, lines 57-65]**.

17. With regard to claim 13, Sensel et al. discloses a method of providing one-to-N redundancy for N normally-active cable modem terminal system (CMTS) data transfer units using a spare CMTS **[interpreted as communications equipment system, see Title]**, the method comprising:

providing the spare CMTS and the N normally-active CMTS data transfer units **[Fig. 4, signal processing functions 29 for all six cards]**;

providing coupling of at least two of the CMTS data transfer units to each other **[Fig. 3, all signal processing functions 29 are coupled to an interface module, interpreted by examiner to be line interface unit 24]**; and

monitoring the normally-active data transfer units for de-activation **[inherent]**.

18. With regard to claim 14, Sensel et al. discloses coupling at least one of M of the CMTS data transfer units to the spare CMTS **[error detection hardware/software resident on the TRIB cards detect a failing TRIB card, col. 4, line 66 to col. 5, line 3; *see also* col. 6, lines 11-24; Figs. 2 and 4, the failed TRIB card 33 gets it's line interface 24 uncoupled from it's signal processing function 29, and, ultimately, the stream couples to signal processing function 29 of TRIB card 36, col. 6, lines 24-35]** in response to one of the N CMTS data transfer units being at least imminently de-activated **[interpreted as communications equipment system, see Title]**, where M is less than N.

19. With regard to claim 15, Sensel et al. discloses that the at least one of M of the CMTS data transfer units is coupled to the spare CMTS in response to one of the N CMTS data transfer units being de-activated **[error detection hardware/software resident on the TRIB cards detect a failing TRIB card, col. 4, line 66 to col. 5, line 3; *see also* col. 6, lines 11-24; Figs. 2 and 4, the failed TRIB card 33 gets it's line interface 24 uncoupled from it's signal processing function 29, and, ultimately, the stream couples to signal processing function 29 of TRIB card 36, col. 6, lines 24-35]**.

20. With regard to claim 16, Sensel et al. discloses that the at least one of M of the CMTS data transfer units is coupled to the spare CMTS in response to one of the N CMTS data transfer units failing **[error detection hardware/software resident on the TRIB cards detect a failing TRIB card, col. 4, line 66 to col. 5, line 3; *see also* col. 6, lines 11-24; Figs. 2 and 4, the failed TRIB card 33 gets it's line interface 24 uncoupled from it's signal processing function 29, and, ultimately, the stream couples to signal processing function 29 of TRIB card 36, col. 6, lines 24-35]**.

21. With regard to claim 18, Sensel et al. discloses that the coupling is provided to the spare CMTS of exactly one of the at least two of the CMTS data transfer units independent of any other CMTS data transfer unit **[Fig. 5, using 1:2 redundantcy, when TRIB card 32 fails, the signal processing function 29 in spare TRIB card 33 is selected to interface with only the two examiner-interpreted signal processing function 29 for TRIB card 33, col. 6, lines 57-65]**.

22. With regard to claim 19, Sensel et al. discloses

coupling the spare CMTS to at least a selected one of the at least two CMTS data transfer units in response to the selected one of the at two CMTS data transfer units being at least imminently de-activated **[error detection hardware/software resident on the TRIB cards detect a failing TRIB card, col. 4, line 66 to col. 5, line 3; *see also* col. 6, lines 11-24; Figs. 2 and 4, the failed TRIB card 33 gets it's line interface 24 uncoupled from it's signal processing function 29, and, ultimately, the stream couples to signal processing function 29 of TRIB card 36, col. 6, lines 24-35]**; and

de-coupling from the spare CMTS from any CMTS data transfer units disposed electrically further from the spare CMTS than the selected one of the at least two CMTS data transfer units **[Fig. 4, signal processing function 29 of failed TRIB card 33 is de-coupled from signal processing function 29 from TRIB card 33 to the left; error detection hardware/software resident on the TRIB cards detect a failing TRIB card, col. 4, line 66 to col. 5, line 3; *see also* col. 6, lines 11-24]**.

23. With regard to claim 20, Sensel et al. discloses that the CMTS data transfer units each include a CMTS and an input/output module, and wherein the providing coupling includes providing daisy-chain coupling of the input/output modules of the at least two CMTS data transfer units **[the signal processing function 29 in spare TRIB card 36 is selected to interface with only the two examiner-interpreted signal processing function 29s for TRIB cards 34 and 35, col. 6, lines 11-32; which are daisy-chain connected to the signal processing function 29 of the failed TRIB card 33]**.

24. With regard to claim 21, Sensel et al. discloses a CMTS system for receiving signals from, and transmitting signals toward, a High-Frequency Coax plant, the system **[interpreted as communications equipment system, see Title]** comprising:

a plurality of normally-active CMTSs each configured to receive and transmit modem-compatible signal **[Figs. 2 and 3, signal processing function 29, col. 4, lines 62-64; DS3 terminator circuits transmit data signals]**s;

a plurality of interface modules coupled to the normally-active CMTSs and configured to convey data toward the HFC from the normally-active CMTSs and from the HFC toward the normally-active CMTSs **[Fig. 3, all signal processing functions 29 are coupled to an interface module, interpreted by examiner to be line interface unit 24]**; and

a spare CMTS configured to receive and transmit modem-compatible signals **[Fig. 4, signal processing function 29 in spare TRIB card 36]**;

a switch mechanism configured to selectively couple the spare CMTS to at least two interface modules independently of any other of the interface modules **[Figs. 2 and 4, line interface units 24 in TRIB cards 33, 34, and 35 are daisy-chained through interconnects 309, 310, 311, 312, and 313, col. 5, lines 53-61; to fail-over TRIB card 36]**;

wherein at least two interface modules are coupled to each other in a daisy-chain fashion to couple at least a first of the interface modules to the spare CMTS via at least a second of the interface modules to which the first interface module is daisy-chain coupled **[Figs. 2 and 4, daisy-chained through interconnects 309, 310, 311, 312, and 313, col. 5, lines 53-61]**.; and

wherein each interface module corresponds to a respective normally-active CMTS, the interface modules each including an upstream input port and a downstream output port **[input 22 is a transmit/receive pair, e.g., DS-3, col. 4, lines 44-48]**, and each interface module is configured to couple its downstream output port and upstream input port to its respective normally-active CMTS, while bypassing the spare CMTS, while the respective normally-active CMTS is operational and to the spare CMTS otherwise **[Fig. 2, input 22 transmit/receive pair is operational for TRIB card 33 until it fails, col. 5, lines 21-35]**.

Claim Rejections - 35 USC § 103

25. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

26. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sensel et al. as applied to claims 1-16 above.

27. With regard to claim 17, Sensel et al. not specifically disclose a discloses using a one-to-M switch. However, using a one-to-M switch is well-known in the art—especially to conditionally connect two nodes in a daisy-chain manner such that the connections are provided on an adaptive manner [as disclosed and explained n claims 1-16 above]. A one-to-M switch's purpose is to provide this dynamic-type switching. Therefore, it would have been obvious ton one of ordinary skill in the art at the time of the invention to have used a one-to-M switch instead of sole-connection hardwire daisy-chaining the nodes together because it would be more efficient and cost-efficient to dynamically connect those nodes instead of using the hardwire connections.

Conclusion

28. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

(a) McDermott, III et al. (USP 6,894,970), Router switch fabric protection using forward error correction.

(b) Cloonan et al. (USP 6,662,368), Variable spare circuit group size and quantity having a multiple active circuits.

29. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark A. Mais whose telephone number is (571) 272-3138. The examiner can normally be reached on 6:00-4:30.

30. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on (571) 272-3134. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

31. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

September 20, 2005

WELLINGTON CHIN
SUPERVISORY PATENT EXAMINER